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FOR ERRATA

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THE FOLLOWING PAGES ARE CHANGES

TO BASIC DOCUMENT

AD 404 700
404700

TM-734/032/OOB

TECHNICAL MEMORANDUM

(TM Series)

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This document was produced by SDC in performance of contract AF 19(628)-1648, Space
Systems Division Program, for Space Systems Division, AFSC.

1604 Simulation Program Descriptions Milestone II	SYSTEM
Simulated Vehicle Time Message Makeup Routine (SCGR)	DEVELOPMENT
by	CORPORATION
P. T. Kastana	2500 COLORADO AVE.
21 October 1963	SANTA MONICA
Approved	CALIFORNIA
R. E. Busch	

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DEC 14 1963

TISIA A

21 October 1963

A

TM-734/032/00B

CURRENT MODIFICATION

<u>Modified Pages</u>	<u>Notes and Filing Instructions</u>
Cover Page	Remove Cover Page and insert Cover Page dated 10/21/63.
A	Remove A page and insert A page dated 10/21/63.
1	ERRATA* Section 1.1, second line. Change "Mod. 04" to "Mod. 05."
2	Remove Page 2 and insert Page 2 dated 10/21/63.
3	Remove Page 3 and insert Page 3 dated 10/21/63.
5	Remove Page 5 and insert Page 5 dated 10/21/63.
6	Remove Page 6 and insert Page 6 and 6A dated 10/21/63.

*ERRATA modifications are to be entered by hand.

3.4 Control Card Format



TIMEX NN BB X.XXX

Where:

Columns 1-4 = Time

5 = A, B or C to specify the type of vehicle time counter.

15-16 = A decimal number ($01 \leq NN \leq 99$) which specifies the desired time interval between time messages. If blank, a period of 30 seconds will be used.

23-24 = A decimal number $01 \leq BB \leq 22$ which specifies the number of bits in the vehicle time counter.

28-32 = A decimal number of the form X.XXX where $0.001 \leq X.XXX \leq 9.999$ which specifies the value of the least significant bit of the vehicle time counter.

3.5 Error Printouts

If Column 5 of the input card image contains any BCD character other than A, B or C, subroutine SEAPA is entered for an on-line printout of the error, recovery options, and an error halt. The on-line message is:

ILLEGAL VEHICLE TIME TYPE SPECIFIED, PUSH
START TO GENERATE OTHER DATA OR FIX CARD
AND RE-START WITH AUTOLOAD.

3.6 Output Data Format

The output of SCGR is a vehicle time message packed in the SIPSA System Table, SIMBUF. The message in SIMBUF will appear as follows:

SIMBUF +0	0000	0000	0000	0010
+1	7777	SS15	OOTT	TTTT
+2	VVVV	VVVV	ZZZZ	CKSUM
+3	0000	0000	0000	0000
+4	0000	0000	0000	0000
+5	0000	0000	0000	0000
+6	0000	0000	0000	0000
+7	0000	0000	0000	0000

where: SS = Station Number
T's = System Time (as defined in TM-(L)-834/000/01)
V's = Specified Vehicle Time
Z's = Fractional part of System Time in milliseconds
CKSUM = Arithmetic Complement Checksum

4.0 METHOD

Upon entrance, SCGR determines, by use of the SIPSA elapsed time counter (STCE), whether or not a message should be generated for this particular generation cycle. In other words, a test is made to determine whether NN* seconds (simulated) of generation time have elapsed since the previous message was formatted. If less than NN seconds have elapsed, an exit is taken with no message formed.

If the time test indicates the need for a time message, the message is generated and placed in the SIPSA System Table, SIMBUF. This message will contain the simulated vehicle time from one of two SIPSA counters, STCA or STCB or if a TIMEC card is read, vehicle time will be determined using the least significant bit value and number of bits from the input card. The particular one to be used is determined by Column 5 of the input card image. After formatting the message, a normal exit is taken. (See Appendix A for a flow diagram of SCGR.)

*NN is the number of seconds specified in the input card image (see Section 3.4.)

21 October 1963

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8.0 VALIDATION TEST

8.1 Inputs

The following deck was input to the SIPSA system with standard COP operating procedures to validate the operation of SCGR. (See TM-(L)-734/022/00 for card formats).

```
*13 SIPSA 0 0 5 BUSCH BB
START      31 A B 02404 0008      02 11 07 01 04
TIMEA
GENERATE    0120
TIMEB              10
GENERATE    0120
TIMEC              05 17 0.125
GENERATE    0200
END-XMIT
STOP
```

8.2 Outputs

As a result of these inputs, SCGR generated 55 vehicle time messages of the proper type, one for each NN second interval of simulated time. One of the messages taken from a tape dump of the simulation tape follows:

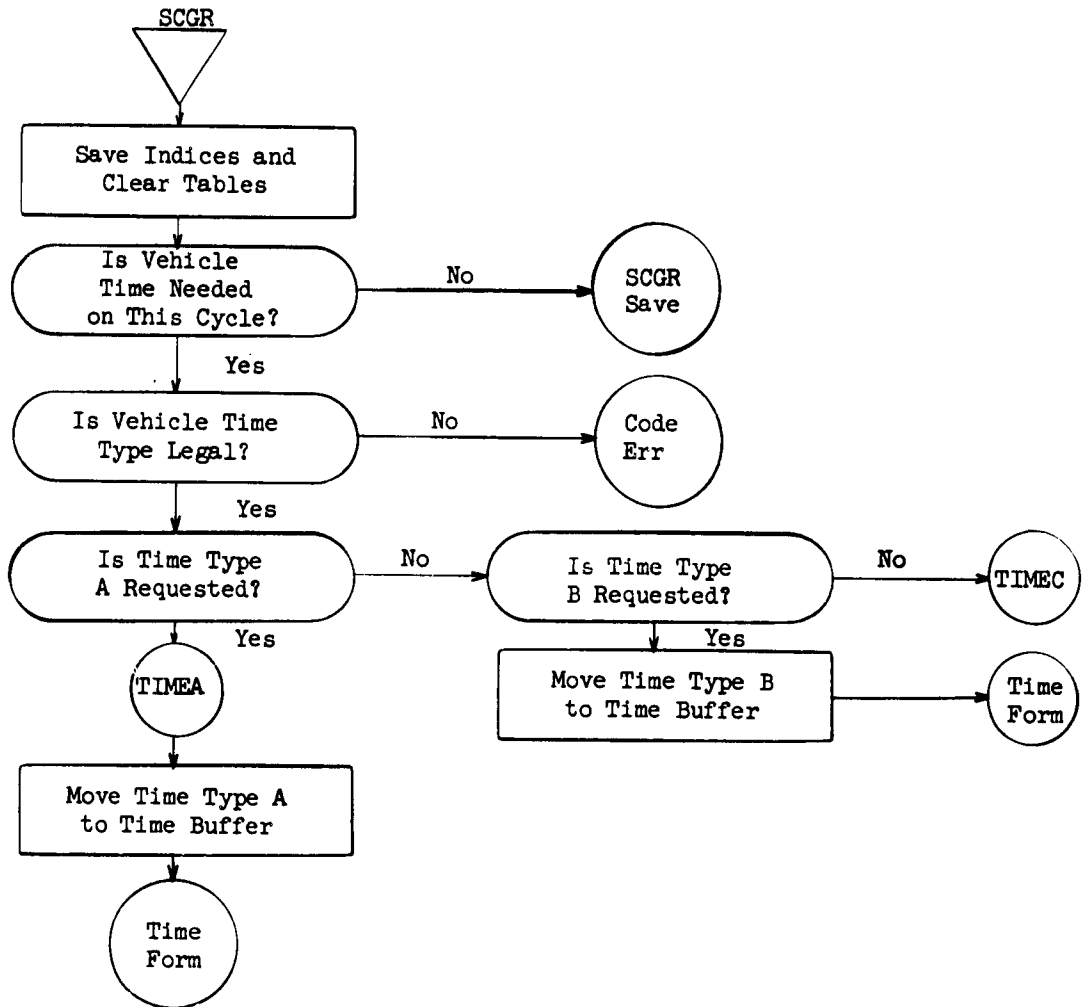
7777	3715	0000	0036
0000	0036	0000	3766
0000	0000	0000	0000

9.0 REFERENCES

9.1 TM-(L)-734/015/00, Computer Program Design Specifications for the Simulation of the Augmented SCF Environment at the STA and CPDC (Milestone 4), System Development Corporation, 21 November 1962.

9.2 TM-(L)-734/022/00, Computer Operating Instructions for the Simulated Input Preparation System for the Augmented SCF Environment at the STA and CPDC (SIPSA), Milestone 7, System Development Corporation, 1 February 1963.

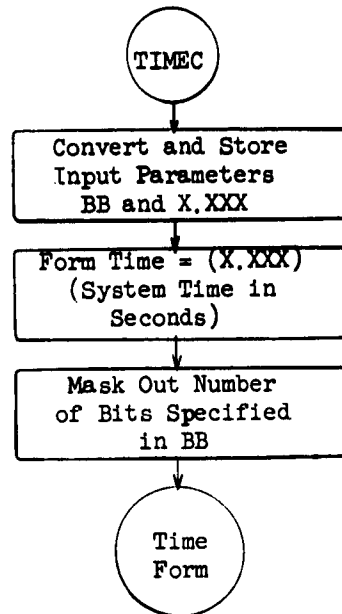
9.3 TM-(L)-834/000/01, Bird Buffer Combined Milestone 3 and 4, System Development Corporation, 17 December 1962.

APPENDIX A

21 October 1963

6A

TM-734/032/OOB



21 October 1963

TM-734/032/00B

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WILSON, G. D.

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22073
22130
22116A
22110
24124

WINSOR, M. E.
WINTER, J. E.
WOLF, A. W.
WONG, J. P.
ZACHTE, S. A.
ZUBRIS, C. J.
R. Frey
J. Solomon
H. Martin

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24115A
24097
SUNNYVALE
24094
24075
23010
23011
22146

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DISSE, R. J.		22082	NGOU, L.	24125
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DUGAS, R. L.		22123	OLSON, M. M.	22077
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KNIGHT, R. D.		22117	TOTSCHKE, R. A.	24118B

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System Development Corporation,
Santa Monica, California
1604 SIMULATION PROGRAM
DESCRIPTIONS MILESTONE 11
SIMULATED VEHICLE TIME MESSAGE
MAKEUP ROUTINE (SCGR).
Scientific rept., TM-734/032/00B,
By P. T. Kastana, 21 October 1963, 7p.
(Contract AF 19(628)-1648, Space Systems
Division Program, for Space Systems
Division, AFSC)

Unclassified report

DESCRIPTORS: Programming (Computers).
Satellite Networks.

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Modifies TM-734/032/00, by
P. T. Kastana, dated
21 October 1963, IDC number 404 700.

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TM-(L)-734/032/00

TECHNICAL MEMORANDUM

(TM Series)

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1604 Simulation Program Descriptions Milestone 11.	SYSTEM
Simulated Vehicle Time Message Makeup Routine (SCGR)	DEVELOPMENT
by	CORPORATION
P. T. Kastama	2500 COLORADO AVE.
15 March 1963	SANTA MONICA
Approved	CALIFORNIA
J. B. Munson	

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TM-(L)-734/032/00

1.0 IDENTIFICATION

1.1 Title

Simulated Vehicle Time Message Makeup Routine (SCGR)

Ident: KO6, Mod. 03

1.2 Programmed

December 1962, R. E. Busch, System Development Corporation

1.3 Documented

March 1963, P. T. Kastama, System Development Corporation

2.0 PURPOSE

This program will generate vehicle time messages once for every NN seconds of simulated time. These messages will then be included on a simulated Bird Buffer - 1604 Transfer Tape, or a Bird Buffer Simulation Tape.

3.0 USAGE

3.1 Calling Sequence

L	RTJ	SCGR
L+1	NORMAL RETURN	

3.2 Operational Procedure

SCGR may only be used with the SIPSA system. The SIPSA control program will set up the above calling sequence after performing several initialization operations. (See TM-(L)-734/022/00 for information on the SIPSA system.)

3.3 Input Parameters

The SIPSA System Time cells STCA, STCB, STCC, STCD, and STCE must have been preset and updated by the control function.

3.4 Control Card Format



TIMEX NN

where:

Columns 1-4 = Time

5 = A or B to specify the type of vehicle time counter.

15-16 = A decimal number ($01 \leq NN \leq 99$) which specifies the desired time interval between time messages. If blank, a period of 30 seconds will be used.

3.5 Error Printouts

If Column 5 of the input card image contains any BCD character other than A or B, subroutine SEAPA is entered for an on-line printout of the error, recovery options, and an error halt. The on-line message is:

ILLEGAL VEHICLE TIME TYPE SPECIFIED, PUSH
START TO GENERATE OTHER DATA OR FIX CARD
AND RE-START WITH AUTOLOAD.

3.6 Output Data Format

The output of SCGR is a vehicle time message packed in the SIPSA System Table, SIMBUF. The message in SIMBUF will appear as follows:

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SIMBUF +0	0000	0000	0000	0010
+1	7777	SS15	00TT	TTTT
+2	VVVV	VVVV	ZZZZ	CKSUM
+3	0000	0000	0000	0000
+4	0000	0000	0000	0000
+5	0000	0000	0000	0000
+6	0000	0000	0000	0000
+7	0000	0000	0000	0000

where: SS = Station Number
T's = System Time (as defined in TM-(L)-834/000/01)
V's = Specified Vehicle Time
Z's = Fractional part of System Time in milliseconds
CKSUM = Arithmetic Complement Checksum

4.0 METHOD

Upon entrance, SCGR determines, by use of the SIPSA elapsed time counter (STCE), whether or not a message should be generated for this particular generation cycle. In other words, a test is made to determine whether NN* seconds (simulated) of generation time have elapsed since the previous message was formatted. If less than NN seconds have elapsed, an exit is taken with no message formed.

If the time test indicates the need for a time message, the message is generated and placed in the SIPSA System Table, SIMBUF. This message will contain the simulated vehicle time from one of two SIPSA counters, STCA or STCB. The particular one to be used is determined by Column 5 of the input card image. After formatting the message, a normal exit is taken. (See Appendix A for a flow diagram of SCGR.)

*NN is the number of seconds specified in the input card image (See Section 3.4.)

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5.0 RESTRICTIONS

5.1 This subroutine is not a COP function and may only be used with the SIPSA system.

5.2 Subroutines Required

SIPSA	SIMBLANK
SDGC	DECOCT
SEAPA	

5.3 RIPOOL Items Used

ST

5.4 External Tables Required

SIMBUF	STCC
STCA	STCD
STCB	STCE

6.0 TIMING*

Minimum	Maximum
0.3 milliseconds	1.2 milliseconds

7.0 STORAGE REQUIREMENTS

	<u>Decimal</u>	<u>Octal</u>
Program	60	75
Constants	3	3
Temporary Storage	<u>20</u>	<u>24</u>
Total	83	123

*Timing values were computed based on average instruction times.

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TM-(L)-734/032/00

8.0 VALIDATION TEST

8.1 Inputs

The following deck was input to the SIPSA system with standard COP operating procedures to validate the operation of SCGR. (See TM-(L)-734/022/00 for card formats.)

```
*13 SIPSA 0 0 5 BUSCH BB
START      31 A B 02404 0008      02 11 07 01 04
TIMEA
GENERATE    0120
TIMEB              10
GENERATE    0120
END-XMIT
STOP
```

8.2 Outputs

As a result of these inputs, SCGR generated eight vehicle time messages of the proper type, one for each 30 second interval of simulated time. One of the messages taken from a tape dump of the simulation tape follows:

7777	3715	0000	0036
0000	0036	0000	3766
0000	0000	0000	0000

9.0 REFERENCES

9.1 TM-(L)-734/015/00, Computer Program Design Specifications for the Simulation of the Augmented SCF Environment at the STA and CPDC (Milestone 4), System Development Corporation, 21 November 1962.

9.2 TM-(L)-734/022/00, Computer Operating Instructions for the Simulated Input Preparation System for the Augmented SCF Environment at the STA and CPDC (SIPSA), Milestone 7, System Development Corporation, 1 February 1963.

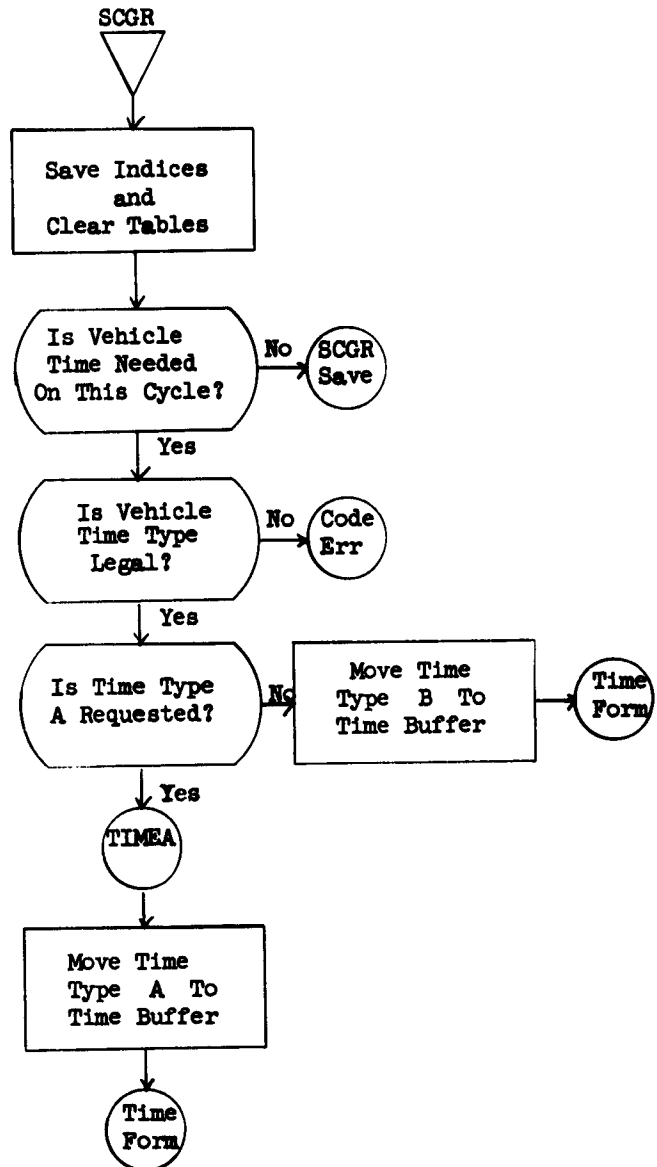
9.3 TM-(L)-834/000/01, Bird Buffer Combined Milestone 3 and 4, System Development Corporation, 17 December 1962.

15 March 1963

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TM-(L)-734/032/00

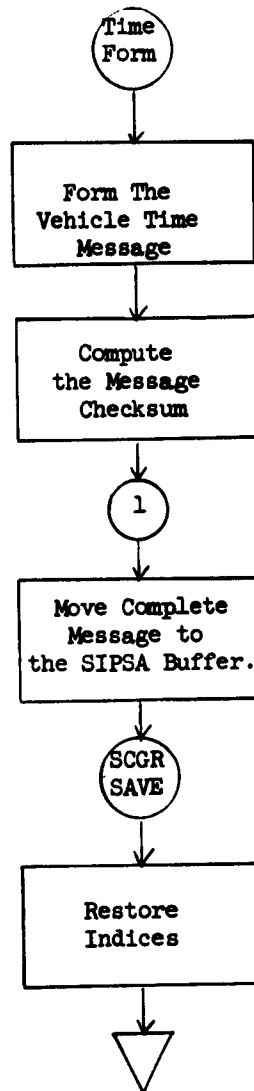
APPENDIX A



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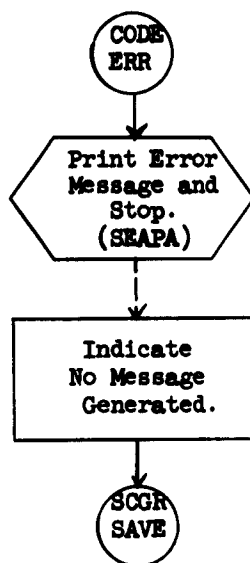
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(Last Page)

TM-(L)-734/032/00



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(3)

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<u>NAME</u>	<u>ROOM</u>
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J. Schroeder	24124
R. Scott	24110
C. Seacat	Sunnyvale
H. Seiden	22126
R. Shapiro	24110
S. Shoel	23007
R. Skelton	22152
N. Speer	24086
E. Stone	24058
M. Sweeney	25026
W. Taber	22101
T. Tennant	27029
J. Thompson	24088
C. Toche	24121
R. Totschek	24120
A. Tucker	22109
A. Vorhaus	24076
M. Weinstock	22131
S. Weems	22109
G. West	Sunnyvale
G. P. West	22116
H. Williams	22110
G. Wilson	24124
M. Winsor	22156
J. Winter	24117
R. Wise	22085
J. Wong	Sunnyvale
C. Zubris	24075
AFCPL (5)	14059

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TM-(L)-734/032/00

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		G. Hudson	24126
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G. Dexter	25016	G. Mahon	24089
R. Disse	23014	J. Marioni	24076
G. Dobbs	22116	R. Marshall	22160
W. Dobrusky	24065	W. Martin	24127
R. Dugas	22125	J. McKeown	23013
		J. Milanese	22155
R. Ellis	22131	J. Munson	22087
R. Ericksen	22113	G. Myers	22095
H. Feldstein	24128	P. Nelson	24075
C. Francis	25013	J. Ng	22077
H. Franks	24122	L. Ngou	24127
R. Frey	22078		
L. Friedman	22122	M. Olson	22161
S. Gardner	25026	L. Padgett	24110
V. Gergen	25014	E. Patin	Sunnyvale
I. Greenwald	22094	D. Persico	24083
		T. Polk	24113

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System Development Corporation,
Santa Monica, California
1604 SIMULATION PROGRAM DESCRIPTIONS
MILESTONE 11 SIMULATED VEHICLE TIME
MESSAGE MAKEUP ROUTINE (SCGR).
Scientific rept., TM(L)-734/032/00,
by P. T. Kastama. 15 March 1963,
8p., 3 refs.
(Contract AF 19(628)-1648, Space
Systems Division Program, for Space
Systems Division, AFSC)

Unclassified report

DESCRIPTORS: Programming (Computers) -
Satellite Networks.

UNCLASSIFIED

Reports that SCGR (Simulated
Vehicle Time Message Makeup
Routine) will generate vehicle
time messages once for every NN
seconds of simulated time. Also
reports that these messages will
be included on a simulation
Bird Buffer - 1604 Transfer
Tape, or a Bird Buffer Simulation
Tape.

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